

Claims

What is claimed is:

- 5        1. A method for modulating circulatory perfusion, comprising:  
            implanting at least one system control unit in the body of the patient,  
            wherein the unit controls the delivery of at least one stimulus to at least a  
            first predetermined area affecting circulatory perfusion; and  
            applying the at least one stimulus to the at least first predetermined area  
10      in order to modulate circulatory perfusion in at least a second area of the patient being  
            treated,  
            wherein the at least first predetermined area is at least one of smooth  
            muscle, skeletal muscle, and vascular tissue.
- 15      2. The method of Claim 1 wherein the first area and the second area are the  
            same area.
- 20      3. The method of Claim 1 wherein the stimulus is electrical stimulation  
            delivered to at least one of a smooth muscle and a skeletal muscle at greater than about  
            50 to 100 Hz to relax the at least one smooth muscle and skeletal muscle.
- 25      4. The method of Claim 1 wherein the stimulus is electrical stimulation  
            delivered to at least one of a smooth muscle and a skeletal muscle at less than about  
            50 to 100 Hz to excite the at least one smooth muscle and skeletal muscle.
- 30      5. The method of Claim 1 wherein the stimulus is electrical stimulation  
            delivered to at least one smooth muscle at less than about 1-10 mA to relax the at least  
            one smooth muscle.
- 30      6. The method of Claim 1 wherein the stimulus is at least one stimulating  
            drug delivered to the bloodstream from at least one of an artery and a vein.

7. The method of Claim 1 wherein the stimulus is electrical stimulation and at least one stimulating drug.

8. The method of Claim 1 further comprising applying the stimulus in coordination with delivery of a medication, wherein the at least second predetermined area includes tissue targeted to receive the medication.

9. The method of Claim 8 wherein the medication is delivered locally, and wherein the stimulus is applied to cause hypoperfusion.

10 10. The method of Claim 8 wherein the medication is delivered systemically, and wherein the stimulus is applied to cause hyperperfusion.

15 11. The method of Claim 1 further comprising implanting more than one system control unit.

12. The method of Claim 1 further comprising sensing a condition and using the sensed condition to automatically determine the stimulus to apply.

20 13. A method for modulating circulatory perfusion, comprising:  
implanting at least one system control unit in the body of the patient,  
wherein the unit controls the delivery of at least one stimulating drug to at  
least a first predetermined area affecting circulatory perfusion;  
applying the at least one stimulating drug to the at least first  
25 predetermined area in order to modulate circulatory perfusion in at least a second area  
of the patient being treated,  
wherein the at least first predetermined area is at least one of smooth  
muscle, skeletal muscle, autonomic neural tissue, and vascular tissue.

30 14. The method of Claim 13 wherein the first area and the second area are  
the same area.

15. The method of Claim 13 wherein the at least one stimulating drug causes hyperperfusion.

16. The method of Claim 15 wherein the at least one stimulating drug is at 5 least one of a sympathetic antagonist, a parasympathetic agonist, a inhibitory neurotransmitter agonist applied to at least one sympathetic neural tissue, an inhibitory neurotransmitter antagonist applied to at least one parasympathetic neural tissue, nitric oxide, nitroglycerin, and a prostaglandin.

10 17. The method of Claim 13 wherein the at least one stimulating drug causes hypoperfusion.

18. The method of Claim 17 wherein the at least one stimulating drug is at 15 least one of a sympathetic agonist, a parasympathetic antagonist, a inhibitory neurotransmitter antagonist applied to at least one sympathetic neural tissue, an inhibitory neurotransmitter agonist applied to at least one parasympathetic neural tissue, indomethacin, and glibenclamid.

19. The method of Claim 13 further comprising implanting more than one 20 system control unit.

20. The method of Claim 13 further comprising sensing a condition and using the sensed condition to automatically determine the stimulus to apply.

25 21. A method for modulating circulatory perfusion, comprising:  
implanting at least one system control unit in the body of the patient,  
wherein the unit controls the delivery of electrical stimulation to at least a  
first predetermined area affecting circulatory perfusion; and  
applying the electrical stimulation to the at least first predetermined area  
30 in order to modulate circulatory perfusion in at least a second area of the patient being  
treated,

wherein the at least first predetermined area is at least one of smooth muscle, skeletal muscle, parasympathetic neural tissue, and vascular tissue.

22. The method of Claim 21 wherein the first area and the second area are  
5 the same area.

23. The method of Claim 21 wherein the electrical stimulation excites parasympathetic neural activity.

10 24. The method of Claim 21 wherein the electrical stimulation inhibits sympathetic neural activity.

25. The method of Claim 21 wherein the electrical stimulation is delivered at less than about 1-10 mA.

15 26. The method of Claim 21 further comprising sensing a condition and using the sensed condition to automatically determine the stimulus to apply.